

## Synergistically active herbicidal mixtures

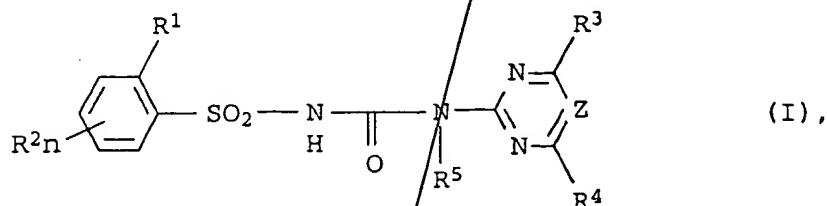
## Abstract

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A herbicidal mixture comprising

a) at least one derivative of a sulfonylurea of the formula I

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where the substituents have the following meanings:

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$R^1$  is  $C_1$ - $C_6$ -alkyl which has attached to it one to five of the following groups: methoxy, ethoxy,  $SO_2CH_3$ , cyano, chlorine, fluorine,  $SCH_3$ ,  $S(O)CH_3$ ;

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*A* halogen;

a group  $ER^6$  where E is O, S or  $NR^7$ ;

$COOR^8$ ;

$NO_2$ ;

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$S(O)_2R^9$ ,  $SO_2NR^{10}R^{11}$ ,  $CONR^{10}R^{11}$ ;

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$R^2$  is hydrogen,  $C_1$ - $C_4$ -alkyl,  $C_2$ - $C_4$ -alkenyl,  $C_2$ - $C_4$ -alkynyl, halogen,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -haloalkoxy;  $C_1$ - $C_4$ -haloalkyl, a  $C_1$ - $C_2$ -alkylsulfonyl group, nitro, cyano or  $C_1$ - $C_4$ -alkylthio;

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$R^3$  is F,  $CF_3$ ,  $CF_2Cl$ ,  $CF_2H$ ,  $OCF_3$ ,  $OCF_2Cl$ , or, if  $R^1$  is  $CO_2CH_3$  and  $R^2$  is simultaneously fluorine,  $R^3$  is Cl, or, if  $R^1$  is  $CH_2CF_3$  or  $CF_2CF_3$ ,  $R^3$  is methyl, or, if  $R^4$  is  $OCF_3$  or  $OCF_2Cl$ ,  $R^3$  is  $OCF_2H$  or  $OCF_2Br$ ;

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$R^4$  is  $C_1$ - $C_2$ -alkoxy,  $C_1$ - $C_2$ -alkyl,  $C_1$ - $C_2$ -alkylthio,  $C_1$ - $C_2$ -alkylamino, di- $C_1$ - $C_2$ -alkylamino, halogen,  $C_1$ - $C_2$ -haloalkyl,  $C_1$ - $C_2$ -haloalkoxy,

$R^5$  is hydrogen,  $C_1$ - $C_2$ -alkoxy,  $C_1$ - $C_4$ -alkyl;

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- 5  $R^6$  is  $C_1$ - $C_4$ -alkyl,  $C_2$ - $C_4$ -alkenyl,  $C_2$ - $C_4$ -alkynyl or  $C_3$ - $C_6$ -cycloalkyl, all of which can have attached to them 1 to 5 halogen atoms, with the exception of allyl, difluoromethoxy, chlorodifluoromethoxy and 2-chloroethoxy, if E is O or S. In the event that E is O or  $NR^7$ ,  $R^6$  is furthermore also methylsulfonyl, ethylsulfonyl, trifluoromethylsulfonyl, allylsulfonyl, propargylsulfonyl or dimethylsulfamoyl;
- 10  $R^7$  is hydrogen, methyl or ethyl
- 15  $R^8$  is a  $C_1$ - $C_6$ -alkyl group which can have attached to it up to three of the following radicals: halogen,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -alkylthio,  $C_1$ - $C_4$ -haloalkoxy,  $C_1$ - $C_4$ -alkoxy- $C_1$ - $C_2$ -alkoxy,  $C_3$ - $C_7$ -cycloalkyl and/or phenyl; a  $C_5$ - $C_7$ -cycloalkyl group which can have attached to it up to three  $C_1$ - $C_4$ -alkyl groups;  $C_3$ - $C_6$ -alkenyl or  $C_3$ - $C_6$ -alkynyl;
- 20  $R^9$  is a  $C_1$ - $C_6$ -alkyl group which can have attached to it one to three of the following radicals: halogen,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -alkylthio,  $C_1$ - $C_4$ -haloalkoxy,  $C_1$ - $C_4$ -alkoxy- $C_1$ - $C_2$ -alkoxy,  $C_3$ - $C_7$ -cycloalkyl and/or phenyl; a  $C_5$ - $C_7$ -cycloalkyl group which can have attached to it one to three  $C_1$ - $C_4$ -alkyl groups;  $C_3$ - $C_6$ -alkenyl or  $C_3$ - $C_6$ -alkynyl;
- 25  $R^{10}$  is hydrogen,  $C_1$ - $C_2$ -alkoxy,  $C_1$ - $C_6$ -alkyl, or together with  $R^{11}$  is a  $C_4$ - $C_6$ -alkylene chain in which one methylene group can be replaced by an oxygen atom or a  $C_1$ - $C_4$ -alkylimino group;
- 30  $R^{11}$  is a  $C_1$ - $C_4$ -alkyl group which can have attached to it one to four halogen or  $C_1$ - $C_4$ -alkoxy radicals;  $C_3$ - $C_6$ -cycloalkyl
- 35 n is 0 - 3
- o is 1 - 2
- 40 Z N or CH,
- or their environmentally compatible salts

and

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- b) a synergistically active amount of at least one herbicidal compound selected from the groups b1 to b41 which have been given in claim 1, herbicidal compositions, and methods of controlling undesirable vegetation.

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